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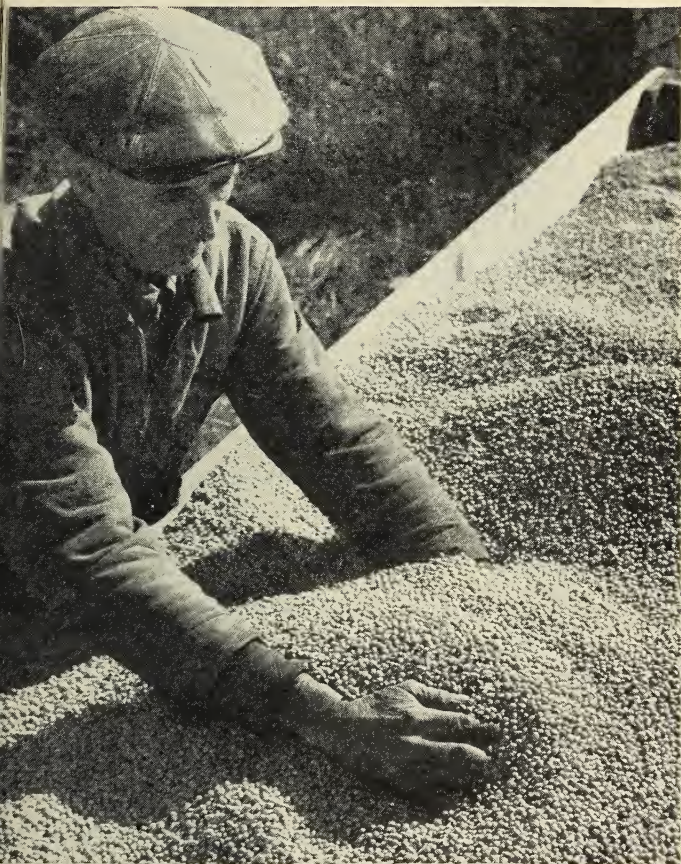
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# 8 Steps in GRADING SOYBEANS

Under revised standards, effective  
September 1, 1949



EXTENSION SERVICE  
U. S. DEPARTMENT OF AGRICULTURE  
AIS-84—JUNE 1949

Farmers know they cannot get top prices for dirty wool, mixed eggs, or tree-run apples. The same is true of low-grade soybeans. This folder shows you how to tell soybeans of high grade.

## **SAMPLE**

Start with a fair sample of the soybeans. (Grain graders use a long metal trier, or probe, to draw a sample.) (1)\*

The first five tests are made before the sample is sieved.

### **1. ODOR**

Smell the sample (2). Soybeans with a musty, sour, or other bad odor will be graded as Sample. Soybeans can grade No. 1, No. 2, No. 3, No. 4, or as Sample. Sample grade is the lowest. The higher grades bring higher prices. No. 2 is the grade used most in the grain business.

### **2. WEEVIL AND GARLIC**

If the soybeans are infested with live weevils or other live insects injurious to stored grain, the term "weevily" is added to the grade, as No. 2 Yellow Soybeans, Weevily.

If 1,000 grams (about 2 $\frac{1}{4}$  lb.) of the soybeans contain five or more garlic bulblets (wild onions), the term "garlicky" is added to the grade, as No. 2 Yellow Soybeans, Garlicky.

Weevils and garlic are seldom found in soybeans, except in a few counties.

### **3. MOISTURE**

Soybeans must be dry to keep from spoiling in the bin. Grade No. 2 may have no more than 14 parts of water in 100 parts of soybeans (14 percent). Grain inspectors make tests for water content with moisture machines (3). Most farmers know by the hardness of the

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\*Numbers in parentheses refer to illustrations.

grain when soybeans are dry enough to store safely.

#### **4. TEST WEIGHT**

Good soybeans are plump and heavy. Grain inspectors use a brass quart measure and beam in making test weight (4). No. 2 soybeans must test at least 54 pounds to the bushel. Farmers with clean, dry, ripe soybeans never have trouble with test weight.

#### **5. FOREIGN MATERIAL**

Soybeans should be clean. Dirt and weed seeds lower the price and grade. Inspectors clean soybean samples with a screen or sieve. The sieve has round holes one-eighth of an inch across. Dirt, pieces of soybeans, and other matter taken out with this sieve are known as fine foreign material. Foreign material also includes corn and other grains, sticks, pods, weed stems, and large weed seeds, such as those of cockleburs, morning-glory, horsenettles, or groundcherries, which will not go through the sieve. Inspectors pick this coarse material off the sieve and add it to the material that went through the sieve. The combination of the fine material removed by the sieve and the coarse material that remained on the sieve makes up the foreign material (5).

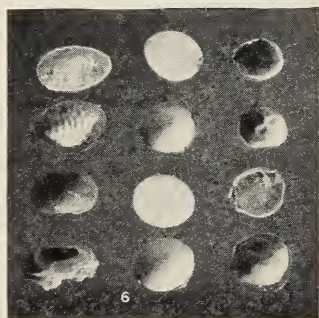
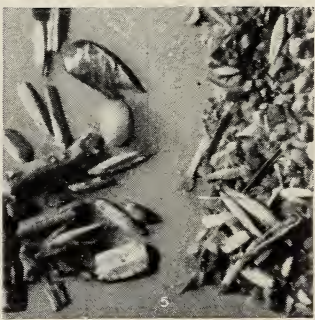
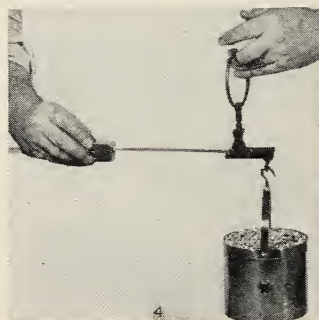
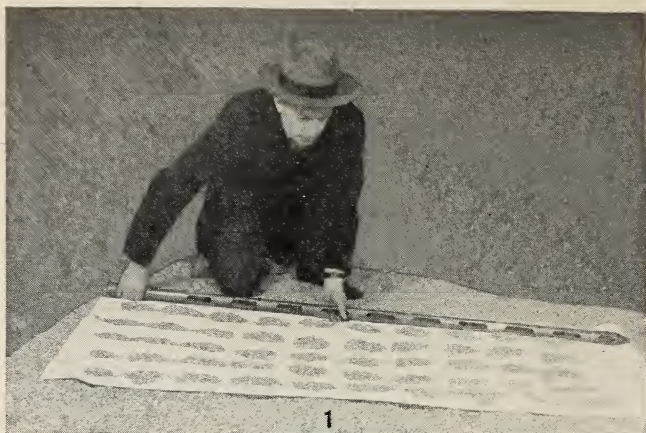
To grade No. 2, soybeans cannot contain over 3 percent of foreign material. See grade chart, column headed "Foreign material."

The next three tests are made on the sample after it has been run over the sieve. The sample may still contain coarse foreign material.

#### **6. MIXED COLORS**

Soybeans of different colors, such as black or brown in yellow, lower the value.





Keep black, brown, and green beans away from the yellow. Over 2 percent other colors in yellow throws the sample out of the No. 2 grade. See grade chart, footnote 1.

## 7. SPLITS

When soybeans are very dry they may split when they go through the combine. The combine should be adjusted during the day as the beans become drier.

To be in No. 2 grade, beans may not be over 20 percent split. Fractions of 1 percent are disregarded in making this test.

## 8. DAMAGE

Soybeans are used for food. Moldy, rotten, or frozen beans are not wanted, and the damaged beans cannot exceed 3 percent if the soybeans are to grade No. 2. Inspectors cut some of the beans in half with a sharp blade to be sure the damage has gone through the outside skin (6). When cut open, sound, ripe soybeans usually show a creamy-yellow color; any great difference in color indicates that the bean is damaged. If damp soybeans heat in the bin, the kernels may turn brown inside and look like over-roasted peanuts. This is called heat damage, and mills do not want heat-damaged soybeans.

Grain inspectors use small scales or balances to make correct tests of what the sample has in it. After your soybean sample is tested by the inspector it is graded (7). If it does not pass for No. 1, it may be No. 2, No. 3, No. 4, or Sample grade.

The inspector must give his reason for assigning the grade he gives to the soybeans. If you are not satisfied with the grade, you may appeal to the district grain-inspection supervisor, United States Department of Agriculture.

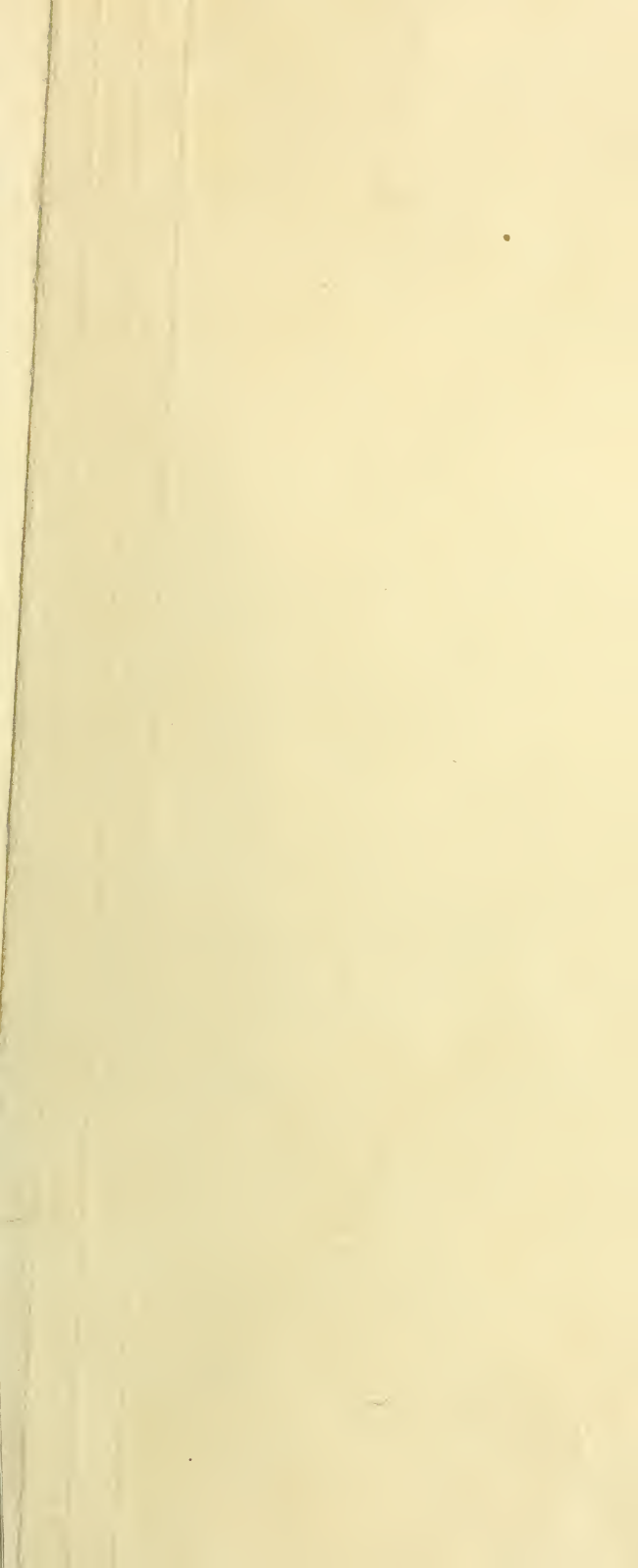
***Grade Chart for Soybeans, Effective September 1, 1949***

Grade	Minimum test weight per bushel	Maximum limits of—			
		Moisture	Splits	Damaged kernels (soybeans and other grains)	Foreign material
	<i>Pounds</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
No. 1 <sup>1</sup> .....	56	13.0	10	2.0	2.0
No. 2 <sup>1</sup> .....	54	14.0	20	3.0	3.0
No. 3 <sup>1</sup> .....	52	16.0	30	5.0	4.0
No. 4 <sup>2</sup> .....	49	18.0	40	8.0	6.0
Sample grade	Sample grade shall be soybeans which do not meet the requirements for any of the grades from No. 1 to No. 4, inclusive; or which are musty, or sour, or heating; or which have any commercially objectionable foreign odor; or which contain stones; or which are otherwise of distinctly low quality.				

<sup>1</sup>The soybeans in grade No. 1 of the class Yellow Soybeans may contain not more than 1.0 percent, in grade No. 2 not more than 2.0 percent, and in grade No. 3 not more than 5.0 percent of Green, Black, Brown, or bicolored soybeans, either singly or in any combination.

<sup>2</sup>Soybeans which are materially weathered shall not be graded higher than No. 4.





## HIGH-GRADE SOYBEANS—

*Have a good natural odor.*

*Are dry and clean, plump and heavy.*

*Are not mixed with soybeans of another color.*

*Do not have many split or damaged beans.*

## WHAT FARMERS CAN DO TO GROW SOYBEANS THAT WILL GRADE HIGH

**1. Use good seed.**—Get a high oil-yielding variety recommended by your own State experiment station.

**2. Make a good seedbed.**—Work the ground well to kill weeds before planting the seed. Plant soon after corn, when the ground is warm, and preferably in rows, so that beans can be cultivated. Late-planted beans may not ripen and may lodge in the field. Inoculate the soil when soybeans are sown on land for the first time.

**3. Harvest carefully.**—Do not combine until the seed is fully ripe. When soybeans are very dry, be careful not to split the seeds in combining or threshing. To prevent spoilage, soybeans should be thoroughly dry before they are put into the bin.

For more information about soybeans call your county extension agent or write to your State agricultural college.

Licensed grain inspectors and Federal grain-inspection supervisors of the United States Department of Agriculture are the officials located in the larger grain markets who can give you further advice on grading soybeans.

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NOTE.—This folder is a revision of AWI-35, which it supersedes.